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EXAMINER

TRAN, MAI HUONG C

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 05/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/036,389

Applicant(s)

LIU ET AL.

Examiner

Mai-Huong Tran

Art Unit

2818

-- **Th MAILING DATE of this communication appears on the cover sheet with the correspond nce address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-27 and 29-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Election/Restriction**

Application's election without traverse of Group II (Claims 13-44) in Paper No. 5 drawn to process of making a semiconductor device is acknowledged for prosecution in the subject application. Accordingly, claims 1-12 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Applicants have the right to file a divisional application covering the subject matter of the non-elected claims.

### **Double Patenting**

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 13-44 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 6,423,570 to Ma et al.. Although the conflicting claims are not identical, they are not patentably distinct from each other because the subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows: a heat spreader attached to a semiconductor die.

### **Claim Rejections - 35 U.S.C. § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13-15 and 17-23 are rejected under 35 U. S. C. § 102 (e) as being anticipated by U.S. Patent No. 6,552,267 to Tsao et al. or Patent No. 6,559,670 to Motamedi.

Regarding to claim 13, Tsao discloses a method of fabricating an integrated circuit package, comprising mounting a thinned semiconductor die 42 on a planar surface of a heat spreader 78 as set forth in col. 5, lines 25-67, col. 6, lines 1-67 and fig. 5.

Motamedi also discloses a method of fabricating an integrated circuit package, comprising mounting a thinned semiconductor die 12 on a planar surface of a heat spreader 30 as set forth in col. 2, lines 8-11, and fig. 1.

Regarding to claim 14, Motamedi discloses the method wherein mounting includes mounting the die on to the heat spreader using a thermally conductive material 115 (col. 2, lines 8-11 and fig. 1).

Claim 15 is rejected under the same rationale set forth above to claim 13.

Claim 17 is rejected under the same rationale set forth above to claim 13.

Claim 18 is rejected under the same rationale set forth above to claim 17.

Claim 19 is rejected under the same rationale set forth above to claim 18.

Claim 20 is rejected under the same rationale set forth above to claim 19.

Claim 21 is rejected under the same rationale set forth above to claim 18.

Claim 22 is rejected under the same rationale set forth above to claim 13.

Claim 23 is rejected under the same rationale set forth above to claim 13.

**Claim Rejections - 35 U.S.C. § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24-31 rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,552,267 to Tsao et al. in view of the remark.

Regarding to claim 24, Tsao discloses a method of fabricating an integrated circuit package, comprising providing a planar heat spreader 78; mounting a thinned semiconductor die 42 on to a planar surface of the heat spreader as set forth in cols. 5-6, and fig. 5.

Tsao does not disclose mounting a plurality of thinned semiconductor dice on to a planar surface of the heat spreader to form a plurality of conjoined microelectronic packages; and singulating the plurality of conjoined microelectronic packages.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to mount a plurality of thinned semiconductor dice on to a planar surface of the heat spreader to form a plurality of conjoined microelectronic packages; and singulating the plurality of conjoined microelectronic packages since it was known in

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the art to mount a plurality of thinned semiconductor dice on to a planar surface of the heat spreader to form a plurality of conjoined microelectronic packages; and singulating the plurality of conjoined microelectronic packages.

Claim 25 is rejected under the same rationale set forth above to claim 24.

Claim 26 is rejected under the same rationale set forth above to claim 25.

Claim 27 is rejected under the same rationale set forth above to claim 25.

Claim 29 is rejected under the same rationale set forth above to claim 24.

Claim 30 is rejected under the same rationale set forth above to claim 29.

Claim 31 is rejected under the same rationale set forth above to claim 32.

Claims 16 and 32-44 are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,552,267 to Tsao et al. in view of the remark.

Regarding to claim 32, Tsao discloses a method of fabricating an integrated circuit package, comprising mounting a thinned semiconductor die 42 on a planar surface of a heat spreader 78 and wherein mounting includes depositing a metallization layer on a back surface of the die as set forth in cols. 5-6 and fig. 5.

Tsao does not disclose the thin semiconductor die has a thickness of no more than 100  $\mu\text{m}$ .

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a thin semiconductor die that has a thickness of no more than 100  $\mu\text{m}$ , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claim 16 is rejected under the same rationale set forth above to claim 32.

Claim 33 is rejected under the same rationale set forth above to claim 32.

Claim 34 is rejected under the same rationale set forth above to claim 32.

Claim 35 is rejected under the same rationale set forth above to claim 32.

Claim 36 is rejected under the same rationale set forth above to claim 32.

Claim 37 is rejected under the same rationale set forth above to claim 32.

Claim 38 is rejected under the same rationale set forth above to claim 32.

Claim 39 is rejected under the same rationale set forth above to claim 32.

Claim 40 is rejected under the same rationale set forth above to claim 39.

Claim 41 is rejected under the same rationale set forth above to claim 39.

Claim 42 is rejected under the same rationale set forth above to claim 41.

Claim 43 is rejected under the same rationale set forth above to claim 39.

Claim 44 is rejected under the same rationale set forth above to claim 39.



### Conclusion

Any inquiry concerning this communication on earlier communications from the examiner should be directed to Mai-Huong Tran, (703) 305-1958. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6:30 PM. The examiner's supervisor, David Nelms can be reached on (703) 308-4910.

The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7724. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
Mai-Huong Tran

  
HOAI HO  
PRIMARY EXAMINER